
V. REMARKS

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by Minkus et al. (U.S. Patent No. 5,460,617). The rejection is respectfully traversed.

The positional relation between the ring members 12, 13 of the present invention and the positional relation between the flanges 34, 48 described in Minkus are completely different. Specifically, in the present invention, when the plunger is inserted in the syringe barrel, the ring members 12, 13 are both positioned in the syringe barrel in the state before the screw portion is connected to the gasket. On the other hand, in Minkus, even while pushing out the liquid medicine, the flange 48 on the back side is still positioned outside the syringe barrel. The flange 48 of Minkus is only intended for pushing out the liquid medicine, and therefore, the object of the invention of Minkus cannot be achieved if the flange 48 is positioned inside the syringe barrel.

Further, in Minkus, the piston 28 is originally attached to the tip of the plunger 12. Minkus does not anticipate the object of the present patent application that the gasket is attached to the screw portion formed at the tip of the plunger in a proper posture while the center axis of the syringe barrel and the center axis of the plunger coincide with each other. From Minkus, it cannot be anticipated that the ring members 12, 13 are both positioned in the syringe barrel when the plunger is inserted therein. The invention of Minkus cannot solve the displacement of the plunger.

Claim 1 is directed to a plunger for a syringe used for supporting and moving a gasket inserted in a syringe barrel and includes a screw portion, a flange, a first ring member, a second ring member, a rib and a plurality of main members. Claim 1 recites that the screw portion is formed at a tip thereof for mounting the gasket and the flange is provided at an end of the plunger. Claim 1 also recites that the first ring member and the second ring member are arranged at an interval from each other at a rear of the screw portion around a center axis of the plunger with the first ring member and the second ring member being disposed apart from each other by 0.5 mm or more, the rib is provided between the first ring member and the flange and the plurality of vane members are provided between the first and second ring members and arranged radially from the center axis of the plunger. Further, claim 1 recites that outer diameters of the first and second in ring members and the plurality of vane

members are equal to or slightly smaller than an inner diameter of the syringe barrel. Claim 1 also recites that, when the plunger is inserted in the syringe barrel in a state immediately before the screw portion is mounted to the gasket, respective ones of outer surfaces of the first ring member, the second ring member and the plurality of vane members abut on an inner surface of the syringe barrel. Claim 1 also recites that the interval between the first ring member and the second ring member is less than a distance between a rear surface of the gasket inserted into the syringe barrel and a rear end of the syringe barrel.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended. Specifically, the applied art fails to teach that a first ring member and a second ring member are disposed apart from each other by 0.5 mm or more and an interval between the first ring member and the second ring member is less than a distance between a rear surface of the gasket inserted into the syringe barrel and a rear end of the syringe barrel. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claim 2 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 2 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(e) as anticipated by Kimber (U.S. Patent No. 6,068,614). The rejection is respectfully traversed.

In Kimber, the rib formed at the rear of the ring 32 is shorter than the vane member of the invention of the present application and, therefore, the rib of Kimber is different from the vane member of the present invention in that it is not capable of being in contact with the inner surface of the syringe barrel.

The invention of Kimber has another ring 33 at the rear of the ring 32. However, this ring 33 is intended for preventing the coming-off from the collar 31 formed at the rear end of the syringe barrel and is not intended for preventing the displacement of the plunger when it is attached to the gasket. In Kimber, the piston 3 is originally attached to the tip of the plunger 28, and therefore it is obvious that the object of preventing the displacement of the plunger when it is attached to the gasket cannot be anticipated even from Kimber.

Further, in Kimber, the rib has to be made short so as to be capable of passing through the collar 31. Therefore, the plunger of Kimber cannot provide the effect of alignment realized by the contact of the outer periphery of the rib with the inner surface of the syringe barrel.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended and indicated above. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2 and 4 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(e) as anticipated by Hirschman et al. (U.S. Patent No. 6,042,565). The rejection is respectfully traversed.

As for the plunger of Hirschman, the piston is also attached to the tip thereof originally and therefore Hirschman does not anticipated the object of preventing the displacement of the plunger when it is attached to the gasket.

The invention of Hirschman, in particular, is made on the premise that the plunger does not rotate and does not have the structure of the invention of the present application such that the plunger is rotated so as to connect the screw portion to the gasket.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended above. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2 and 4 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by Shanley et al. (U.S. Patent No. 5,685,864). The rejection is respectfully traversed.

As for the plunger of Shanley, the piston is also attached to the tip thereof originally and therefore Shanley does not anticipated the object of preventing the displacement of the plunger when it is attached to the gasket.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended above. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claim 2 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 2 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claim 3 is rejected under 35 U.S.C. 102 (b) for 102 (e) as anticipated by or, in the alternative, under 35 U.S.C. 103 (a) as obvious over Minkus or Grimard or Hirschman. The rejection is respectfully traversed.

Claim 3 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 3 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

In summary, all of the cited documents disclose the art in which the plunger is inserted in the syringe barrel after the gasket is originally attached to the tip of the plunger, and do not at all describe the effects or functions of the ring members and the vane members when the gasket is attached to the tip of the plunger in the syringe barrel.

Moreover, none of the cited documents give any indication or motivation of combining the cited documents.

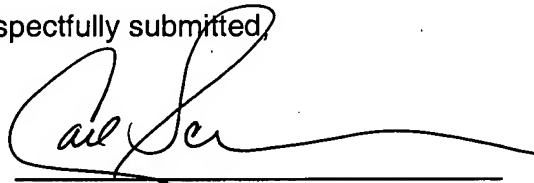
The key point of the present invention is that the rear portion (the ring members and the vane members) of the screw portion formed at the tip portion of the plunger comes in contact with the inner surface of the syringe barrel when the gasket is attached to the plunger in the syringe barrel. According to the present invention, when the plunger is inserted in the syringe barrel and the screw portion is connected to the gasket while the plunger is being rotated, the outer peripheral surfaces of the ring members and the vane members come in contact with the inner surface of the syringe barrel, so that the displacement can be prevented. The number of vanes and the arrangement thereof may be changed (the vane members need not be radially arranged) as long as this effect can be obtained.

At least for the reasons set forth above, withdrawal of the rejection is respectfully requested.

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,



By:

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